

AMENDMENT AND RESPONSE

Serial Number: 09/316,515

Filing Date: May 21, 1999

Title: METHOD AND APPARATUS FOR TREATING IRREGULAR VENTRICULAR CONTRACTIONS SUCH AS DURING ATRIAL ARRHYTHMIA

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Dkt: 279.112US1

91.[Amended] A cardiac rhythm management system, including:

a ventricular sensing circuit;

a controller, the controller including:

a V-V interval timer;

a first register for storing a first indicated pacing interval;

means for updating the first indicated pacing interval <sup>US</sup>from a most recent V-V interval duration and a previous value of the first indicated pacing interval; and

a ventricular therapy circuit, providing pacing therapy based at least partially on the first indicated pacing interval.

**REMARKS**

Applicant has reviewed and considered the Office Action mailed on August 30, 2000, and the reference cited therewith.

Claims 1, 2, 8, 15, 26-29, 35, 42, 53, 54, 58, 59, 63, 67-70, 73, 77, 80 and 91 were amended. Claims 1-91 are pending in this application.

*Rejection Under 35 U.S.C. § 112*

In the Office Action, claims 8-11, 15-21, 26, 27, 35-38, 42-49, 53, 54, 67-70 and 73-87 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The Office action asserted claims 8, 15, 35, 42, 71 and 80 seemed to conflict with the claims on which they depend. Applicant has amended claims 8, 15, 35, 42 and 80 to more clearly point out the subject matter recited in the claims. As for claim 71, Applicant respectfully submits claim 71 does not appear to be in conflict with independent claim 63 as asserted in the office action. Applicant respectfully requests clarification of the rejection of claim 71, or withdrawal of the rejection.

For claims 26 and 53, it was asserted "the minimum first indicated pacing interval" lacked antecedent basis. Applicant has amended claims 26 and 53 to more clearly point out the subject matter recited in the claims.

For claims 27 and 54, it was asserted "the maximum first indicated pacing interval" lacked antecedent basis. Applicant has amended claims 26 and 53 to more clearly point out the subject matter recited in the claims.

For claims 67-70, the rejection asserted the claims were a listing of parts that were incomplete since the IIR, FIR, etc. did not perform any function in the claims or for the filter. Applicant has amended claims 67-70 to more clearly point out the subject matter recited in the claims.

Applicant amended claims 73 and 77 in an effort to more clearly point out the subject matter recited in the claims, and not in response to any documents cited in the present office action.

Applicant respectfully requests reconsideration and allowance of claims 8-11, 15-21, 26, 27, 35-38, 42-49, 53, 54, 67-70 and 73-87.

*Rejections Under 35 U.S.C. § 102*

**Claim 1, 23, 24, 26, 28, 50, 51, 53, 58, 62 - 65, 69, 70, 88 and 91**

Claims 1, 23, 24, 26, 28, 50, 51, 53, 58, 62 - 65, 69, 70, 88 and 91 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,480,413 to Greenhut et al. (hereinafter "Greenhut"). Applicant addresses each rejection in detail as follows.

**Claim 1**

Applicant amended claim 1 to more clearly describe the claimed subject matter. Insofar as the rejection is applied to claim 1, as clarified, Applicant respectfully traverses the rejection of claim 1, as follows.

Applicant respectfully submits Greenhut fails to anticipate the subject matter of claim 1, as Applicant is unable to find in Greenhut each and every element as set forth in claim 1. For example, Applicant can find no teaching in Greenhut, besides other things, of a method that includes computing a first indicated pacing interval from a most recent V-V interval duration and a previous value of the first indicated pacing interval, as recited in claim 1.

Applicant respectfully requests reconsideration and allowance of claim 1.

Claim 23

Applicant respectfully traverses the rejection of claim 23. Applicant respectfully submits Greenhut fails to anticipate the subject matter of claim 23, as Applicant is unable to find in Greenhut each and every element as set forth in claim 23. For example, Applicant can find no teaching in Greenhut, besides other things, of a method in which providing pacing therapy is based on a second indicated pacing interval that is based on a sensor, as recited in claim 23.

In addition, Applicant respectfully repeats the above argument for claim 1 in support of patentability for claim 23. Also, claim 23 is patentable as a further limitation of patentable base claim 1. Applicant respectfully requests reconsideration and allowance of claim 23.

Claim 24

Applicant respectfully traverses the rejection of claim 24. Applicant respectfully submits Greenhut fails to anticipate the subject matter of claim 24, as Applicant is unable to find in Greenhut each and every element as set forth in claim 24. For example, Applicant can find no teaching in Greenhut, besides other things, of a method in which providing pacing therapy is based on the shorter of the first and second indicated pacing intervals, as recited in claim 24.

In addition, Applicant respectfully repeats the above argument for claims 1 and 23 in support of patentability for claim 24. Also, claim 24 is patentable as a further limitation of patentable base claim 1. Applicant respectfully requests reconsideration and allowance of claim 24.

Claim 26

Applicant respectfully repeats the above argument for claim 1 in support of patentability for claim 26. Additionally, claim 26 is patentable as a further limitation of patentable base claim 1. Applicant respectfully requests reconsideration and allowance of claim 26.

Claim 28

Applicant amended claim 28 to more clearly describe the claimed subject matter. Insofar as the rejection is applied to claim 28, as clarified, Applicant respectfully traverses the rejection of claim 28, as follows.

Applicant respectfully submits Greenhut fails to anticipate the subject matter of claim 28, as Applicant is unable to find in Greenhut each and every element as set forth in claim 28. For example, Applicant can find no teaching in Greenhut, besides other things, of a method that includes computing a first indicated pacing interval from a most recent V-V interval duration and a previous value of the first indicated pacing interval, as recited in claim 28.

Applicant respectfully requests reconsideration and allowance of claim 28.

Claim 50

Applicant respectfully traverses the rejection of claim 50. Applicant respectfully submits Greenhut fails to anticipate the subject matter of claim 50, as Applicant is unable to find in Greenhut each and every element as set forth in claim 50. For example, Applicant can find no teaching in Greenhut, besides other things, of a method in which providing pacing therapy is also based on a second indicated pacing interval that is based on a sensor, as recited in claim 50.

In addition, Applicant respectfully repeats the above argument for claim 28 in support of patentability for claim 50. Also, claim 50 is patentable as a further limitation of patentable base claim 28. Applicant respectfully requests reconsideration and allowance of claim 50.

Claim 51

Applicant respectfully traverses the rejection of claim 51. Applicant respectfully submits Greenhut fails to anticipate the subject matter of claim 51, as Applicant is unable to find in Greenhut each and every element as set forth in claim 51. For example, Applicant can find no teaching in Greenhut, besides other things, of a method in which providing pacing therapy is based on the shorter of the first and second indicated pacing intervals, as recited in claim 51.

In addition, Applicant respectfully repeats the above argument for claims 28 and 50 in support of patentability for claim 51. Also, claim 51 is patentable as a further limitation of patentable base claim 28. Applicant respectfully requests reconsideration and allowance of claim 51.

Claim 53

Applicant respectfully repeats the above argument for claim 28 in support of patentability for claim 53. Additionally, claim 53 is patentable as a further limitation of patentable base claim 28. Applicant respectfully requests reconsideration and allowance of claim 53.

Claim 58

Applicant amended claim 58 to more clearly describe the claimed subject matter. Insofar as the rejection is applied to claim 58, as clarified, Applicant respectfully traverses the rejection of claim 58, as follows.

Applicant respectfully submits Greenhut fails to anticipate the subject matter of claim 58, as Applicant is unable to find in Greenhut each and every element as set forth in claim 58. For example, Applicant can find no teaching in Greenhut, besides other things, of a cardiac rhythm management system that includes a controller that obtains V-V intervals between ventricular beats and computes a first indicated pacing interval from a most recent V-V interval duration and a previous value of the first indicated pacing interval, as recited in claim 58.

Applicant respectfully requests reconsideration and allowance of claim 58.

Claim 62

Applicant respectfully traverses the rejection of claim 62. Applicant respectfully submits Greenhut fails to anticipate the subject matter of claim 62, as Applicant is unable to find in Greenhut each and every element as set forth in claim 62. For example, Applicant can find no teaching in Greenhut, besides other things, of a cardiac rhythm management system that includes a sensor, and in which a controller computes a second indicated pacing interval based on signals received from the sensor, and in which a ventricular therapy circuit provides pacing therapy that is also based on the second indicated pacing interval, as recited in claim 62.

In addition, Applicant respectfully repeats the above argument for claim 58 in support of patentability for claim 62. Also, claim 62 is patentable as a further limitation of patentable base claim 58. Applicant respectfully requests reconsideration and allowance of claim 62.

Claim 63

Applicant amended claim 63 to more clearly describe the claimed subject matter. Insofar as the rejection is applied to claim 63, as clarified, Applicant respectfully traverses the rejection of claim 63, as follows.

Applicant respectfully submits Greenhut fails to anticipate the subject matter of claim 63, as Applicant is unable to find in Greenhut each and every element as set forth in claim 63. For example, Applicant can find no teaching in Greenhut, besides other things, of a cardiac rhythm management system that includes a controller having a filter that updates a first indicated pacing interval from a V-V interval timer and a first register, as recited in claim 63.

Applicant respectfully requests reconsideration and allowance of claim 63.

Claim 64

Applicant respectfully traverses the rejection of claim 64. Applicant respectfully submits Greenhut fails to anticipate the subject matter of claim 64, as Applicant is unable to find in Greenhut each and every element as set forth in claim 64. For example, Applicant can find no teaching in Greenhut, besides other things, of a cardiac rhythm management system that includes a controller having a second register for storing a second indicated pacing interval that is based on a signal received from a sensor, and where a ventricular therapy circuit provides pacing therapy based on one or more of the first and second indicated pacing intervals, as recited in claim 64.

In addition, Applicant respectfully repeats the above argument for claim 63 in support of patentability for claim 64. Also, claim 64 is patentable as a further limitation of patentable base claim 63. Applicant respectfully requests reconsideration and allowance of claim 64.

Claim 65

Applicant respectfully traverses the rejection of claim 65. Applicant respectfully submits Greenhut fails to anticipate the subject matter of claim 65, as Applicant is unable to find in Greenhut each and every element as set forth in claim 65. For example, Applicant can find no teaching in Greenhut, besides other things, of a cardiac rhythm management system that includes an atrial sensing circuit and an atrial tachyarrhythmia detection module, where the selection

module selects the first indicated pacing interval as the selected indicated pacing interval during an atrial tachyarrhythmia, as recited in claim 65.

In addition, Applicant respectfully repeats the above argument for claims 63 and 64 in support of patentability for claim 65. Also, claim 65 is patentable as a further limitation of patentable base claim 63. Applicant respectfully requests reconsideration and allowance of claim 65.

Claim 69

Applicant respectfully traverses the rejection of claim 69. Applicant respectfully submits Greenhut fails to anticipate the subject matter of claim 69, as Applicant is unable to find in Greenhut each and every element as set forth in claim 69. For example, Applicant can find no teaching in Greenhut, besides other things, of a cardiac rhythm management system with a filter that includes an averager, as recited in claim 69.

In addition, Applicant respectfully repeats the above argument for claims 63 and 64 in support of patentability for claim 69. Also, claim 69 is patentable as a further limitation of patentable base claim 63. Applicant respectfully requests reconsideration and allowance of claim 69.

Claim 70

Applicant respectfully traverses the rejection of claim 70. Applicant respectfully submits Greenhut fails to anticipate the subject matter of claim 70, as Applicant is unable to find in Greenhut each and every element as set forth in claim 70. For example, Applicant can find no teaching in Greenhut, besides other things, of a cardiac rhythm management system with a filter that includes a weighted averager, as recited in claim 70.

In addition, Applicant respectfully repeats the above argument for claims 63 and 69 in support of patentability for claim 70. Also, claim 70 is patentable as a further limitation of patentable base claim 63. Applicant respectfully requests reconsideration and allowance of claim 70.

Claim 88

Applicant respectfully repeats the above argument for claim 63 in support of patentability for claim 88. Additionally, claim 88 is patentable as a further limitation of patentable base claim 63. Applicant respectfully requests reconsideration and allowance of claim 88.

Claim 91

Applicant amended claim 91 to more clearly describe the claimed subject matter. Insofar as the rejection is applied to claim 91, as clarified, Applicant respectfully traverses the rejection of claim 91, as follows.

Applicant respectfully submits Greenhut fails to anticipate the subject matter of claim 91, as Applicant is unable to find in Greenhut each and every element as set forth in claim 91. For example, Applicant can find no teaching in Greenhut, besides other things, of a cardiac rhythm management system that includes a controller having means for updating the first indicated pacing interval from a most recent V-V interval duration and a previous value of the first indicated pacing interval, as recited in claim 91.

Applicant respectfully requests reconsideration and allowance of claim 91.

Claims 1-3, 26, 27, 58, 59, 63, 88 and 91

Claims 1-3, 26, 27, 58, 59, 63, 88 and 91 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 5,814,085 to Hill (hereinafter "Hill"). Applicant addresses the rejection of the claims as follows.

Claim 1

Applicant amended claim 1 to more clearly describe the claimed subject matter. Insofar as the rejection is applied to claim 1, as clarified, Applicant respectfully traverses the rejection of claim 1, as follows.

Applicant respectfully submits Hill fails to anticipate the subject matter of claim 1, as Applicant is unable to find in Hill each and every element as set forth in claim 1. For example, Applicant can find no teaching in Hill, besides other things, of a method that includes computing a first indicated pacing interval from a most recent V-V interval duration and a previous value of



the first indicated pacing interval, as recited in claim 1.

Applicant respectfully requests reconsideration and allowance of claim 1.

### Claim 2

Applicant amended claim 2 to more clearly describe the claimed subject matter. Insofar as the rejection is applied to claim 2, as clarified, Applicant respectfully traverses the rejection of claim 2, as follows.

Applicant respectfully submits Hill fails to anticipate the subject matter of claim 2, as Applicant is unable to find in Hill each and every element as set forth in claim 2. For example, Applicant can find no teaching in Hill, besides other things, of a method where computing the first indicated pacing interval includes adjusting a first indicated pacing interval by an amount based on the most recent V-V interval duration and the previous value of the first indicated pacing interval, if the most recent V-V interval is concluded by an intrinsic beat, as recited in claim 2. Applicant is also unable to find in Hill a method where computing the first indicated pacing interval includes increasing the first indicated pacing interval by an amount based on the most recent V-V interval duration and the previous value of the first indicated pacing interval, if the most recent V-V interval is concluded by a paced beat, as recited in claim 2.

In addition, Applicant respectfully repeats the above argument for claim 1 in support of patentability for claim 2. Also, claim 2 is patentable as a further limitation of patentable base claim 1. Applicant respectfully requests reconsideration and allowance of claim 2.

### Claim 3

Applicant respectfully traverses the rejection of claim 3. Applicant respectfully submits Hill fails to anticipate the subject matter of claim 3, as Applicant is unable to find in Hill each and every element as set forth in claim 3. For example, Applicant can find no teaching in Hill, besides other things, of a method in which adjusting a first indicated pacing interval includes obtaining a first average of the most recent V-V interval and the previous value of the first indicated pacing interval, as recited in claim 3. In addition, Applicant can find no teaching in Hill, of a method where increasing a first indicated pacing interval includes obtaining a second average of the most recent V-V interval and the previous value of the first indicated pacing

interval, as recited in claim 3.

In addition, Applicant respectfully repeats the above argument for claims 1 and 2 in support of patentability for claim 3. Also, claim 3 is patentable as a further limitation of patentable base claim 1. Applicant respectfully requests reconsideration and allowance of claim 3.

Claim 26

Applicant respectfully traverses the rejection of claim 26. Applicant respectfully submits Hill fails to anticipate the subject matter of claim 26, as Applicant is unable to find in Hill each and every element as set forth in claim 26. For example, Applicant can find no teaching in Hill, besides other things, of a method where computing a first indicated pacing interval includes limiting the first indicated pacing interval to be longer than or equal to an interval corresponding to an upper rate limit, as recited in claim 26. In addition, Applicant can find no teaching in Hill, of a method where increasing a first indicated pacing interval includes obtaining a second average of the most recent V-V interval and the previous value of the first indicated pacing interval, as recited in claim 26.

In addition, Applicant respectfully repeats the above argument for claim 1 in support of patentability for claim 26. Also, claim 26 is patentable as a further limitation of patentable base claim 1. Applicant respectfully requests reconsideration and allowance of claim 26.

Claim 27

Applicant respectfully repeats the above argument for claim 1 in support of patentability for claim 27. Additionally, claim 27 is patentable as a further limitation of patentable base claim 1. Applicant respectfully requests reconsideration and allowance of claim 27.

Claim 58

Applicant amended claim 58 to more clearly describe the claimed subject matter. Insofar as the rejection is applied to claim 58, as clarified, Applicant respectfully traverses the rejection of claim 58, as follows.

Applicant respectfully submits Hill fails to anticipate the subject matter of claim 58, as

Applicant is unable to find in Hill each and every element as set forth in claim 58. For example, Applicant can find no teaching in Hill, besides other things, of a cardiac rhythm management system that includes a controller that obtains V-V intervals between ventricular beats and computes a first indicated pacing interval from a most recent V-V interval duration and a previous value of the first indicated pacing interval, as recited in claim 58.

Applicant respectfully requests reconsideration and allowance of claim 58.

#### Claim 59

Applicant amended claim 59 to more clearly describe the claimed subject matter. Insofar as the rejection is applied to claim 59, as clarified, Applicant respectfully traverses the rejection of claim 59, as follows.

Applicant respectfully submits Hill fails to anticipate the subject matter of claim 59, as Applicant is unable to find in Hill each and every element as set forth in claim 59. For example, Applicant can find no teaching in Hill, besides other things, of a cardiac rhythm management system in which a controller adjusts the first indicated pacing interval, by an amount based on the most recent V-V interval duration and the previous value of the first indicated pacing interval, if the most recent V-V interval is concluded by an intrinsic beat, as recited in claim 59. In addition, Applicant can find no teaching in Hill of a controller that increases the first indicated pacing interval, by an amount based on the most recent V-V interval duration and the previous value of the first indicated pacing interval, if the most recent V-V interval is concluded by a paced beat, as recited in claim 59.

In addition, Applicant respectfully repeats the above argument for claim 58 in support of patentability for claim 59. Also, claim 59 is patentable as a further limitation of patentable base claim 58. Applicant respectfully requests reconsideration and allowance of claim 59.

#### Claim 63

Applicant amended claim 63 to more clearly describe the claimed subject matter. Insofar as the rejection is applied to claim 63, as clarified, Applicant respectfully traverses the rejection of claim 63, as follows.

Applicant respectfully submits Hill fails to anticipate the subject matter of claim 63, as

Applicant is unable to find in Hill each and every element as set forth in claim 63. For example, Applicant can find no teaching in Hill, besides other things, of a cardiac rhythm management system having a controller that includes a filter that updates a first indicated pacing interval from the V-V interval timer and a first register, as recited in claim 63.

Applicant respectfully requests reconsideration and allowance of claim 63.

Claims 88 and 89

Applicant respectfully repeats the above argument for claim 63 in support of patentability for claims 88 and 89. Additionally, claims 88 and 89 are patentable as further limitations of patentable base claim 63. Applicant respectfully requests reconsideration and allowance of claims 88 and 89.

Claim 91

Applicant amended claim 91 to more clearly describe the claimed subject matter. Insofar as the rejection is applied to claim 91, as clarified, Applicant respectfully traverses the rejection of claim 91, as follows.

Applicant respectfully submits Hill fails to anticipate the subject matter of claim 91, as Applicant is unable to find in Hill each and every element as set forth in claim 91. For example, Applicant can find no teaching in Hill, besides other things, of a cardiac rhythm management system having a controller that includes means for updating the first indicated pacing interval from a most recent V-V interval duration and a previous value of the first indicated pacing interval, as recited in claim 91.

Applicant respectfully requests reconsideration and allowance of claim 91.

Rejections Under 35 U.S.C. § 103

In the Office Action, claims 25, 27, 52, 54, 67, 68 and 89 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,480,413 to Greenhut et al. (hereinafter "Greenhut"). Applicant addresses the rejection of the claims as follows.

Claims 25, 27, 52 and 54

Applicant respectfully traverses the rejection of claims 25, 27, 52 and 54.

The Office Action asserted that “Greenhut discloses the claimed invention except for the lower rate limit . . . .” Greenhut is, therefore, insufficient to support a *prima facie* case of obviousness, as Greenhut fails to disclose, besides other things, the lower rate limit as recited in claims 25, 27, 52 and 54. In addition, Applicant traverses the assertion that Greenhut discloses the claimed invention and respectfully repeats the arguments presented above for claims 1 and 28 in support of the traversal of claims 25 and 27, and 52 and 54, respectively.

The Office Action further asserted that “[i]t would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the implantable device of Greenhut to include a lower rate limit to provide a lower limit on the pacing rate that can effectively pace the heart . . . .” Applicant respectfully traverses this assertion and respectfully requests a document in support of this assertion that it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the implantable device of Greenhut as suggested, as required by M.P.E.P. 2144.03, in the next office action.

Based on the above arguments, Applicant respectfully requests reconsideration and allowance of claims 25, 27, 52 and 54 under 35 U.S.C. Section 103 over Greenhut.

Claims 67 and 68

Applicant respectfully traverses the rejection of claims 67 and 68.

The Office Action asserted that “Greenhut discloses the claimed invention except for . . . the filter including an IIR and FIR.” Greenhut is, therefore, insufficient to support a *prima facie* case of obviousness, as Greenhut fails to disclose, besides other things, a filter including an IIR or a FIR, as recited in claims 67 and 68, respectively.

The Office Action further asserted that “[i]t would have been an obvious matter of design choice to one skilled in the art, to use an IIR or FIR in the filter, since applicant has not disclosed that the IIR or FIR provides any criticality and/or unexpected results and it appears that the invention would perform equally well with the averager/weighted averager as taught by Greenhut to determine if the pacing rate should be changed.” Applicant respectfully traverses this assertion and respectfully requests a document in support of this assertion that it would have been obvious

to one having ordinary skill in the art at the time of the invention to modify the implantable device of Greenhut as suggested, as required by M.P.E.P. 2144.03, in the next office action. In addition, Applicant respectfully traverses the assertion that Greenhut teaches an averager/weighted averager to determine if the pacing rate should be changed, and respectfully repeats the arguments presented above for claims 69 and 70 in support of the traversal.

Based on the above arguments, Applicant respectfully requests reconsideration and allowance of claims 69 and 70 under 35 U.S.C. Section 103 over Greenhut.

Claim 89

Applicant respectfully repeats the above argument for claim 63 in support of patentability for claim 89. Additionally, claim 89 is patentable as a further limitation of patentable base claim 63. Applicant respectfully requests reconsideration and allowance of claim 89.

Allowable Subject Matter

Applicant notes the allowance of claim 90.

Claims 4-7, 12-14, 22, 29-34, 39-41, 55-57, 60, 66, 71 and 72 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 8-11, 15-21, 35-38, 42-49 and 73-87 were indicated to be allowable if rewritten to overcome the rejection(s) under 35 USC 112, second paragraph, set forth in this Office Action and to include all of the limitations of the base claim and any intervening claims.

AMENDMENT AND RESPONSE

Serial Number: 09/316,515

Filing Date: May 21, 1999

Title: METHOD AND APPARATUS FOR TREATING IRREGULAR VENTRICULAR CONTRACTIONS SUCH AS DURING ATRIAL ARRHYTHMIA

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**CONCLUSION**

Applicant believes the claims are in condition for allowance and requests reconsideration of the application and allowance of the claims. Please charge any fees deemed necessary to Deposit Account 19-0743. The Examiner is invited to telephone the below-signed attorney at 612-359-3270 to discuss any questions which may remain with respect to the present application.

Respectfully submitted,

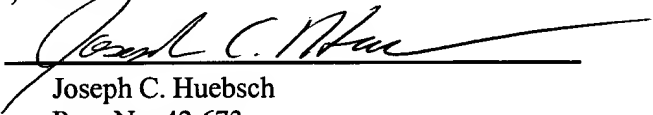
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Date Jan. 30, 2001

By

  
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**CERTIFICATE UNDER 37 CFR 1.8:** The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Commissioner of Patents, Washington, D.C. 20231, on this 30th. day of January, 2001.

Name

GREG HANSON

Signature

